Name: ______________________________

GCSE (1 – 9)

Algebraic Fractions

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

1 Simplify fully $\dfrac{x^2 + 5x}{x^2 + 7x + 10}$

…..........................

(Total for question 1 is 2 marks)

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2 Simplify fully $\dfrac{x^2 - x - 12}{x^2 - 9x + 20}$

…..........................

(Total for question 2 is 2 marks)

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3 Simplify fully $\dfrac{3x^2 + 9x}{x^2 - 9}$

…..........................

(Total for question 3 is 2 marks)

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4 Simplify fully $\dfrac{x + 4}{x^2 - 16}$

…..........................

(Total for question 4 is 2 marks)

5 Write $\dfrac{3x^2 + 11x - 4}{x^2 + 3x - 4}$ in the form $\dfrac{ax + b}{x + c}$ where *a, b,* and *c* are integers.

……………………….

(Total for question 5 is 3 marks)

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6 Write $\dfrac{x^2 + 7x - 18}{2x^2 - x - 6}$ in the form $\dfrac{x + a}{bx + c}$ where *a, b,* and *c* are integers.

……………………….

(Total for question 6 is 3 marks)

7 Simplify fully $\frac{3x + 6}{x - 4} \div \frac{2x^2 + 9x + 10}{x^2 - 4x}$

…..........................

(Total for question 7 is 3 marks)

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8 Simplify fully $\frac{2x - 2}{x + 5} \div \frac{x^2 - 4x + 3}{2x^2 + 13x + 15}$

…..........................

(Total for question 8 is 3 marks)

9 Solve $\dfrac{8}{x+3} + \dfrac{3}{x+8} = 1$

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(Total for question 9 is 4 marks)

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10 Solve $\dfrac{8}{3x-2} + \dfrac{6}{x+1} = 2$

....

(Total for question 10 is 4 marks)

11 Solve $\dfrac{2}{5-x}+\dfrac{3}{x+7}=1$

……………………………………………

(Total for question 11 is 4 marks)

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12 Solve $\dfrac{7}{x+1}-\dfrac{4}{3x-2}=1$

……………………………………………

(Total for question 12 is 4 marks)

13 Given that

$$2x + 1 : x + 2 = x + 8 : 3x - 4$$

Find the possible values of x.

……………………………………………………

(Total for question 13 is 4 marks)

14 Given that

$$x - 1 : 2x - 3 = x + 2 : 3x - 2$$

Find the possible values of x.

……………………………………………………

(Total for question 14 is 4 marks)

15 Given that

$$x + 9 : 5x - 1 = x + 7 : 2x - 3$$

Find the possible values of x.

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(Total for question 15 is 4 marks)

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16 Given that

$$5 - 3x : 9 - x = 3x + 7 : 4 - x$$

Find the possible values of x.

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(Total for question 16 is 4 marks)